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ABSTRACT

A method of JPEG compression of an image frame divided up into a plurality of non-overlapping, tiled 8 x 8 pixel blocks B_{ij} where i, j are integers covering all of the blocks in the image frame. A global quantization matrix Q is determined by either selecting a standard JPEG quantization table or selecting a quantization table such that the magnitude of each quantization matrix coefficient, Q_{ij} is inversely proportional to a visual importance, I_{ij}, to the image of a corresponding DCT basis vector. Next a linear scaling factor S_{ij} is selected which defines bounds over which the image is to be variably quantized. Transform coefficients, D_{ijmn}, obtained from a digital cosine transform of B_{ij}, are quantized and the quantized coefficients T_{ijmn} and $Q * S_{min}$ are entropy encoded , where S_{min} is a user selected minimum scaling factor, to create a JPEG image file. The algorithm is unique in that it allows for the effect of variable-quantization to be achieved while still producing a fully compliant JPEG file.